



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,920	01/30/2004	Thomas Patrick Nolan	146712004000	3979
25227	7590	07/26/2006		EXAMINER
MORRISON & FOERSTER LLP 1650 TYSONS BOULEVARD SUITE 300 MCLEAN, VA 22102			RICKMAN, HOLLY C	
			ART UNIT	PAPER NUMBER
			1773	

DATE MAILED: 07/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/766,920	NOLAN, THOMAS PATRICK	
	Examiner Holly Rickman	Art Unit 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 11 May 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 11-20 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-8 and 21 is/are rejected.
- 7) Claim(s) 9 and 10 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 30 January 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 1/30/04.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Claims 11-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected method, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 5/11/06.

***Specification***

2. The disclosure is objected to because of the following informalities: paragraph [0032] of the specification refers to a related application by attorney docket number only. Applicant is asked to correct this informality by amending the specification to refer to the application by application number and patent number.

Appropriate correction is required.

***Claim Interpretation***

3. Claim 1 requires a magnetic layer that has “a derivative structure of fcc that is not a fcc lattice structure.” This limitation has been interpreted in light of the specification to mean an fct L10 lattice structure. If this interpretation is incorrect, Applicant is asked to clarify the record.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 21 is rejected under 35 U.S.C. 102(e) as being clearly anticipated by Nakamura et al. (US 2005/0134988).

Nakamura et al. discloses a magnetic recording medium having a substrate and a “means for producing an easy magnetization axis tilted away from the plane of the substrate” in the form of a thermally treated L10 magnetic layer which exhibits a tilted easy axis.

#### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeong et al. (“Controlling the crystallographic orientation in ultrathin L1- FePt (111) films on MgO(111) underlayer”, IEEE Trans Magn, Vol. 37, No. 4, July 2001, pp 1268-1270) in view of Nakamura et al. (US 20050134988).

Jeong et al. disclose a magnetic recording medium having a substrate, an fcc (111) underlayer and a magnetic layer thereon having an fct L10 structure (ie, fcc derivative structure).

The reference fails to disclose that the c-axis of the magnetic grains is at an angle, canted out of the plane of the magnetic layer.

Nakamura et al. teach that it is known in the art to deposit a magnetic recording layer formed from an L10 structure such that the c-axes of the magnetic grains are tilted out of the plane of the magnetic layer at an angle between 5 and 55 degrees. A specific example having an angle of 40 degrees is provided (see paragraph 48).

It would have been obvious to one of ordinary skill in the art at the time of invention to form the L10 magnetic layer taught by Jeong et al. to have a tilted c-axis structure in accordance with the teaching of Nakamura et al. in order to achieve a magnetic recording medium having improved resolution and S/N ratio as suggested by Nakamura et al.

***Allowable Subject Matter***

8. Claims 9-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The closest prior art to Jeong et al fails to teach or suggest the use of an underlayer material having the claimed crystalline structure formed from alloys of Ru, Ag, Pt, or Pd (wherein the term alloy in the claim requires a mixture of one of the claimed elements with another alloying component). Jeong et al. also fails to teach or suggest the use of an amorphous TiCr alloy underneath the underlayer.

***Conclusion***

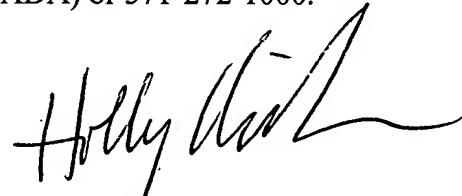
9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chen et al. ("Effect of Pt buffer layer on structural and magnetic properties of FePt thin films", J Appl Phys, Vol. 93, No. 3, February 2003, pp. 1661-1665), Wu et al. (US 6936353), Stipe et al. (US 20060002026), Nolan (US 20060024530) and Gao et al (IEEE, Trans Magn, Vol. 38, No. 6, Nov 2002, pp 3675-3683) are cited as art of interest.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1773

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Holly Rickman  
Primary Examiner  
Art Unit 1773